NOVEMBER 1980
No. 11

FISHING INFORMATION

Southwest Fisheries Center-La Jolla, California

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / NATIONAL MARINE FISHERIES SERVICE

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
SOUTHWEST FISHERIES CENTER
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FISHING INFORMATION

NOVEMBER 1980, No. 11

EDITOR: JAMES A. RENNER

I. Barrett, Director, SOUTHWEST FISHERIES CENTER
J. Carr, Deputy Director

PREFACE

This publication, Fishing Information, appears monthly and contains 1) fishery advisory information, 2) a narrative description of pertinent surface temperature conditions, 3) charts of winds and pressures for the eastern North Pacific, 4) charts of sea surface temperature for the North Pacific and eastern tropical Pacific, and 5) charts of subsurface temperature structure in the eastern North Pacific.

A supplement to Fishing Information appears at 15-day intervals throughout the year. It contains a chart of sea surface temperature (contoured at $2^{o}F$ ($1^{o}C$) intervals) from Baja California to Vancouver Island out to about $135^{o}W$. Special bulletins are published in conjunction with the 15-day sea surface temperature charts which include short-term projections of albacore distribution and locations of productive fishing areas, information on oceanographic and atmospheric conditions, and other information as is appropriate during the albacore fishing season.

NOTICE TO SUBSCRIBERS

Publication of FISHING INFORMATION and its 15-day supplements by the National Marine Fisheries Service will cease with the December 1980 issue. Beginning with the January 1981 issue, responsibility for the preparation of the types of charts currently published in Fishing Information will be transferred to the National Weather Service and the National Environmental Satellite Service. Scientists of the Fishing Information staff are currently working with National Weather Service and National Environmental Satellite Service personnel to ensure that the follow-on publication to Fishing Information meets user needs and that a smooth transition takes place.

We here at the National Marine Fisheries Service wish to thank you for your continued interest in, and support for, FISHING INFORMATION and urge you to lend similar support to the new National Weather Service/National Environmental Satellite Service publication.

To cancel delivery of this publication in the event you no longer need to receive it, or to change the delivery address if you are moving but still need to receive it, please notify us by writing: Editor, Fishing Information, National Marine Fisheries Service, Southwest Fisheries Center, P. O. Box 271, La Jolla, California 92038.

Submitted for publication - January 13, 1981

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ENVIRONMENTAL CHARTS ANALYZED BY:

F. Miller (Figures 8 and 9)
F. Miller (Figures 1, 2, 3, 4, 5, 6, 7, and 15-day Supplement)

TECHNICAL EDITOR:
R. Allen

CARTOGRAPHY:
R. Allen, H. Orr

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  J. Redhead at Langara Island Light
  H. Ewen at Cape St. James Light
  R. W. Moe at Kains Island Light
  M. V. Stewart at Amphitrite Point Light

Scripps Institution of Oceanography, La Jolla, California

Sea Surface Temperature and Environmental Conditions

Forrest R. Miller

Eastern North Pacific

During November sea surface temperature (SST) normally decrease 1 to 3°C over the north Pacific. The Aleutian low pressure system is normally centered near 57°N, 145°W, and the high pressure center is usually near 30°N, 140°W (Figure 1). Surface winds are strongest and ocean mixing is most intense in the north Pacific from 40°N to 50°N between the Aleutian low and the eastern Pacific high pressure center. Along the southern boundary of the north Pacific ocean front (40°N to 45°N) storm systems intensify and moved eastward toward the U.S. west coast.

During November 1980 the Aleutian low intensified and moved eastward with the center near 57°N, 150°W. Central pressures in the Aleutian low were 8 millibars below normal. The eastern Pacific high pressure center was located on an average near 32°N, 132°W (Figure 2). During this month the strongest surface winds developed on the southern periphery of the Aleutian low from 40°N to 55°N. Weather fronts and storm centers intensified and moved eastward along the band of strong winds and crossed the west coast from northern California to British Columbia.

A strong north Pacific ocean front was reflected in the SST pattern between 40°N and 45°N west of 140°W where the isotherms were closely packed in Figure 3. Strong surface winds north of 35°N caused extensive ocean mixing and contributed to maintaining a strong ocean front. An extensive region of negative anomalies, more the 1°C below normal, developed in October 1980 and appeared again this month in the central north Pacific (Figure 5) where ocean wind mixing and weather fronts were most active. From 120°W to 140°W SST's cooled at less than seasonal rates over several large areas, especially in the eastern half of the Gulf of Alaska. As a result, positive SST anomalies appeared in November over several areas off the U.S. west coast south of 45°N where lighter surface winds and better weather than normal prevailed under a high pressure regime that dominated the weather East of 120°W. Along the southern California and Baja coasts, SST's have remained more than 1°C below normal where southward bulging isotherms (Figure 3) reflected the southward transport of colder water in the California Current. Figure 7 reveals that SST's during November 1980 were significantly colder than in November 1979 over most of the eastern north Pacific. Two exceptions to this were found in the north part of the Gulf of Alaska and in a large area southwest of British Columbia. A contributing factor to these SST differences was the differences in locations and intensities of the Aleutian low and Pacific high pressure system during each November.

Western North Pacific

During November 1980, the western Pacific high pressure system was near normal in strength and location along 30°N. The western extension of the Aleutian low has been well defined for the past two months with surface pressures 2 to 4 millibars below normal north of 40°N. The extensive low pressure system across the north Pacific caused strong surface, wind mixing of the ocean from 40°N to 50°N. Because of increased wind mixing of the ocean surface layer, the north Pacific Ocean front

was sharply defined from the coast of northern Japan to the central Pacific north of 40°N (Figure 4). The intensity of the frontal boundary and ocean mixing was also marked by the extent of negative anomalies more than 1°C below normal north of 40°N and the adjacent areas to the south of positive anomalies. South of 30°N and east of 145°E, SST's in the western Pacific high pressure system cooled at greater than seasonal rates in association with weather fronts and strong surface winds that expanded ocean cooling by wind mixing and reduced surface heating under cloud cover.

Eastern Tropical Pacific

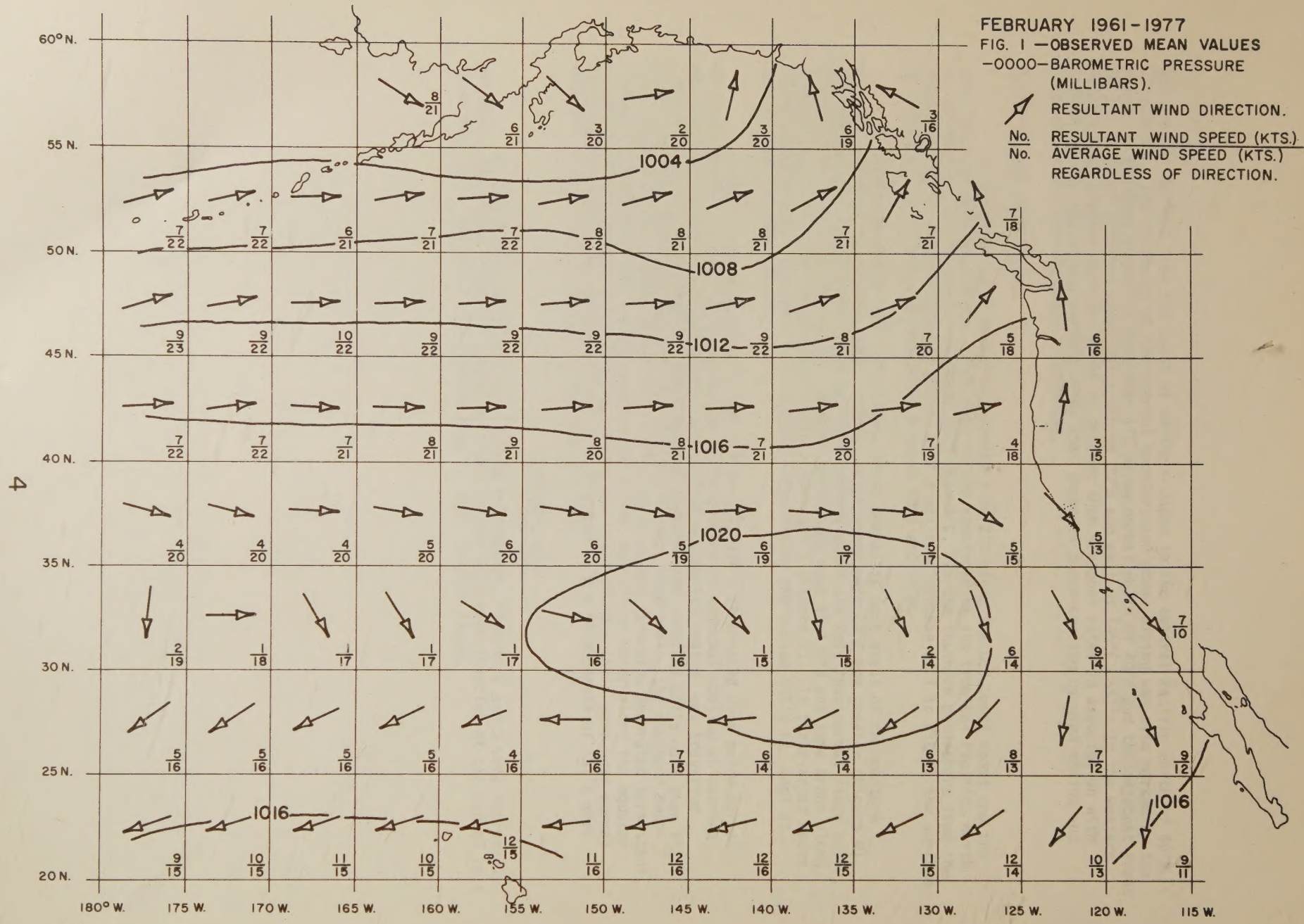
In November SST's normally decrease 1 to 2°C along the U.S. west coast and the west coast of Baja California. Over most of the remainder of the tropical Pacific, north of the equator, SST's usually decrease less than 1°C. In the southern hemisphere from the equator to 25°S, warming normally occurs with a maximum increase of 1 to 2°C at the surface of the Peru Current and adjacent areas between 80°W and 95°W.

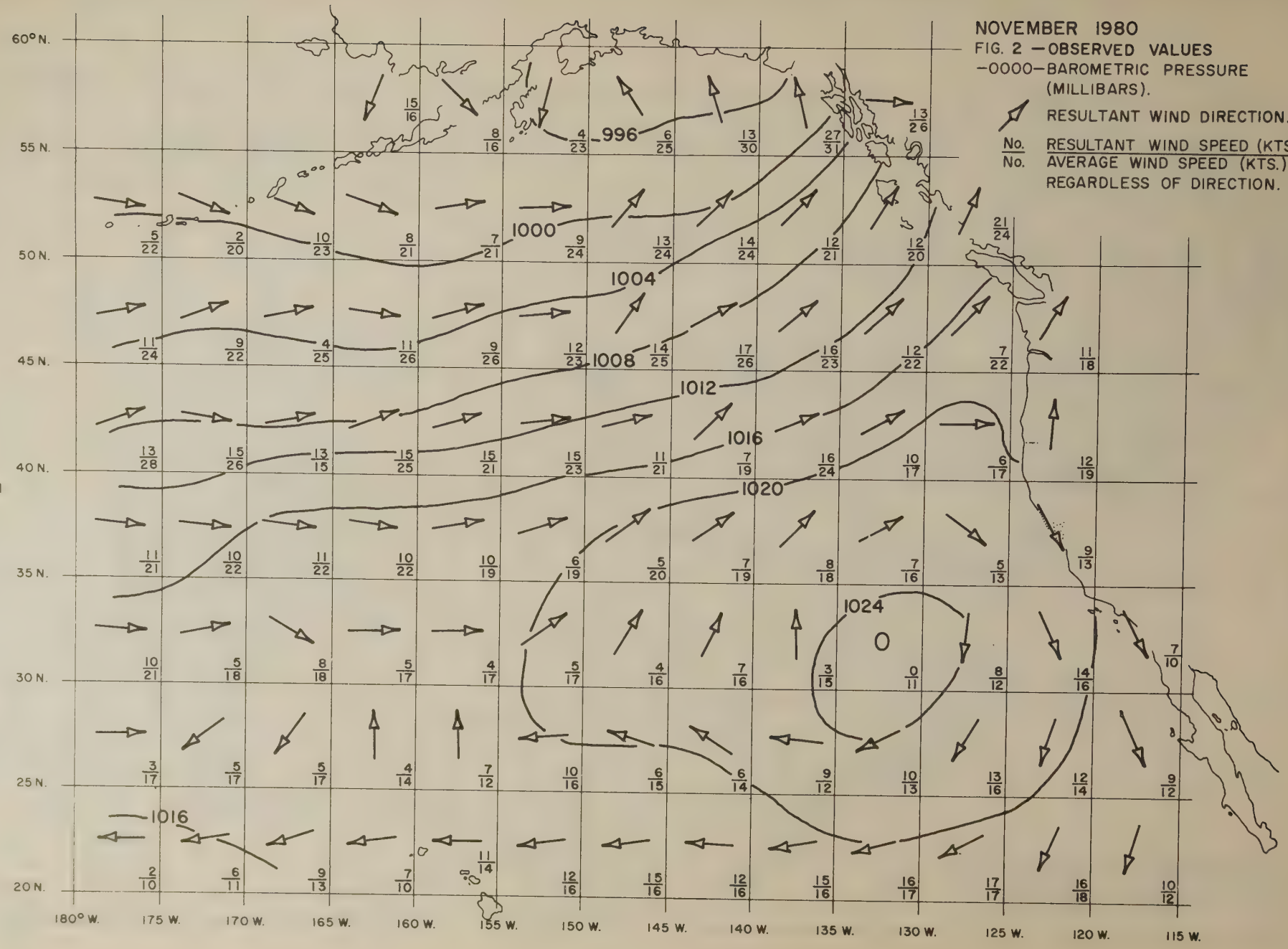
During November 1980, SST's were above normal in most areas of the eastern tropical north of the equator where surface temperature were 28°C and greater (Figure 8). These areas were usually dominated by light surface winds and less than normal cloud cover. A large part of the tropics of the northern hemisphere west of 130°W and some areas along the west coast of Mexico experienced below normal SST's (Figure 9). In these areas above normal surface winds generated considerable ocean mixing and caused SST's to cool at greater than seasonal rates.

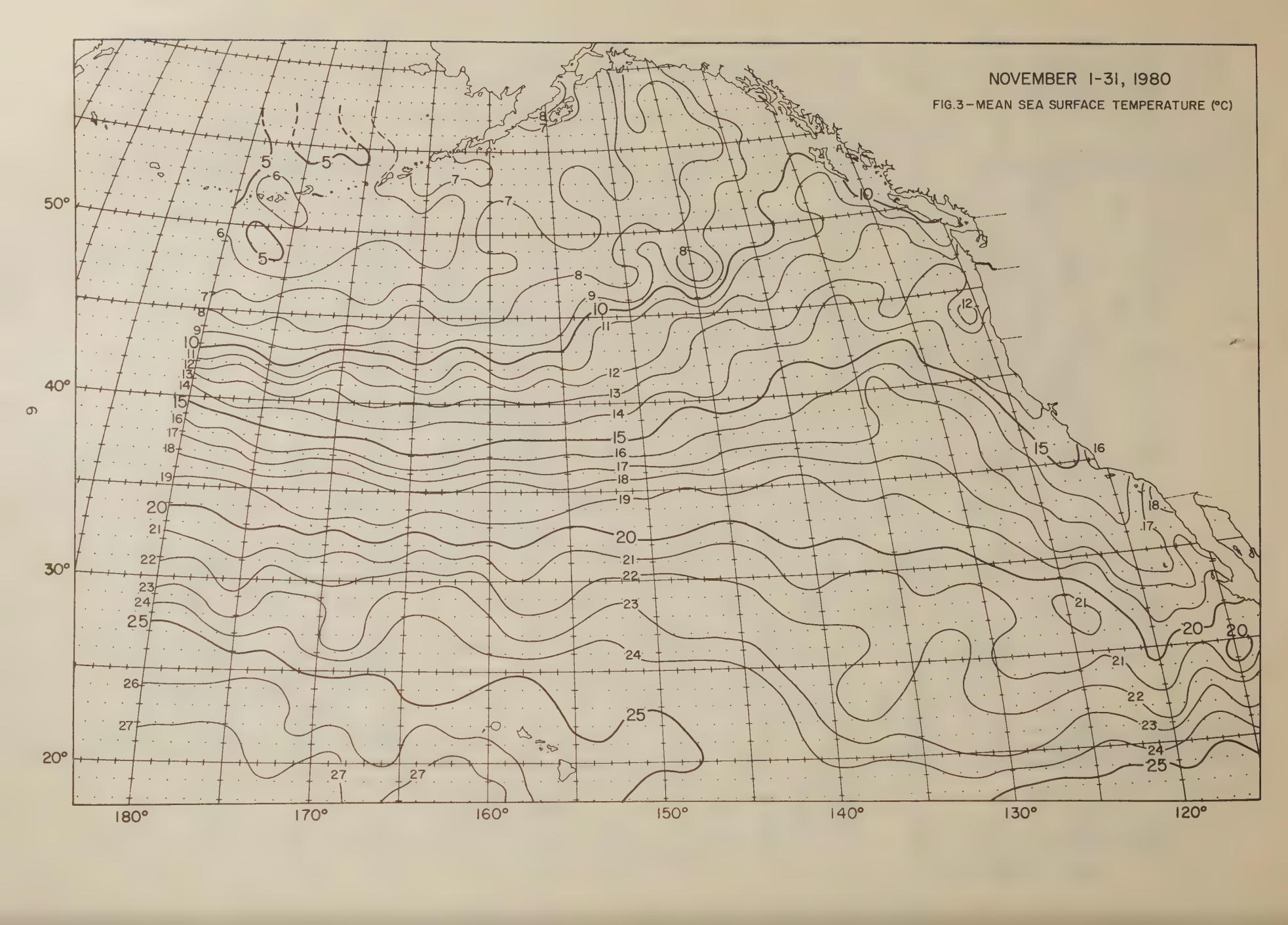
Along the equatorial zone from 5°N to 5°S, SST's alternated from below normal to above normal in adjacent areas, and no clear pattern of abnormal cooling or warming was apparent, except between 95°W and 115°W. This equatorial region was traversed frequently by ships, and most observed surface temperatures revealed SST's more than 1°C below normal in two areas centered on 100°W and 110°W. Apparently, the southern hemispere high pressure system, which was usually above normal strength, generated persistant, southeast trade winds that aided upwelling of colder subsurface water along the equator and ocean mixing away from the equator. Along the coast of Peru SST's were near normal in the Peru Current, but to the west between 85°W and 95°W a warm pocket of SST's more than 1°C above normal developed during November 1980.

EDITOR'S NOTE

In the October 1980 issue of Fishing Information, Figures 2 and 5 were improperly printed. Therefore, corrected copies of these Figures have been inserted at the end of this issue for those who wish to replace them in their October issue.

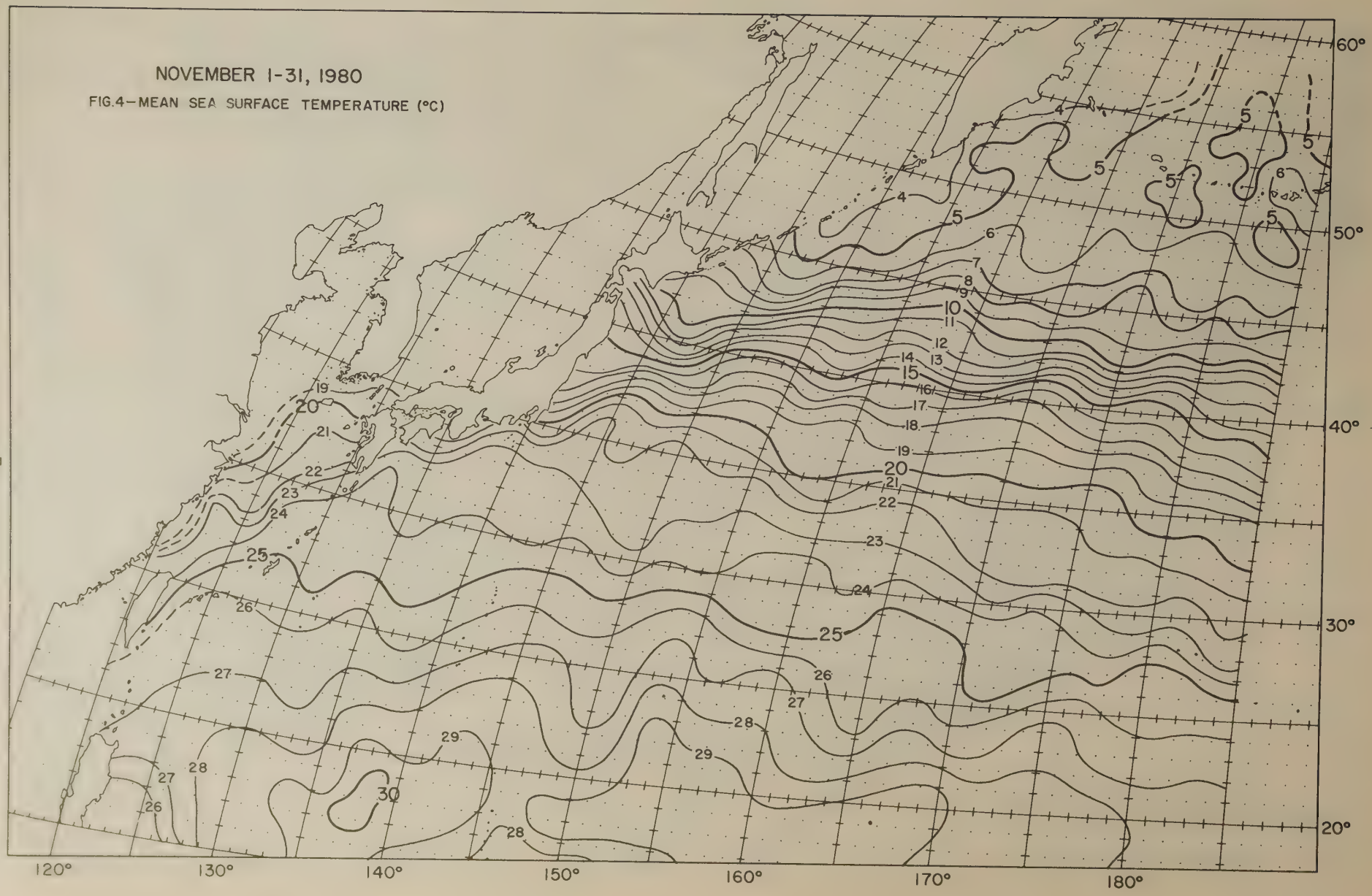

FEBRUARY 1961-1977
FIG. 1 —OBSERVED MEAN VALUES
—0000—BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.)
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1004
1008
1012
1016
1020
1016
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

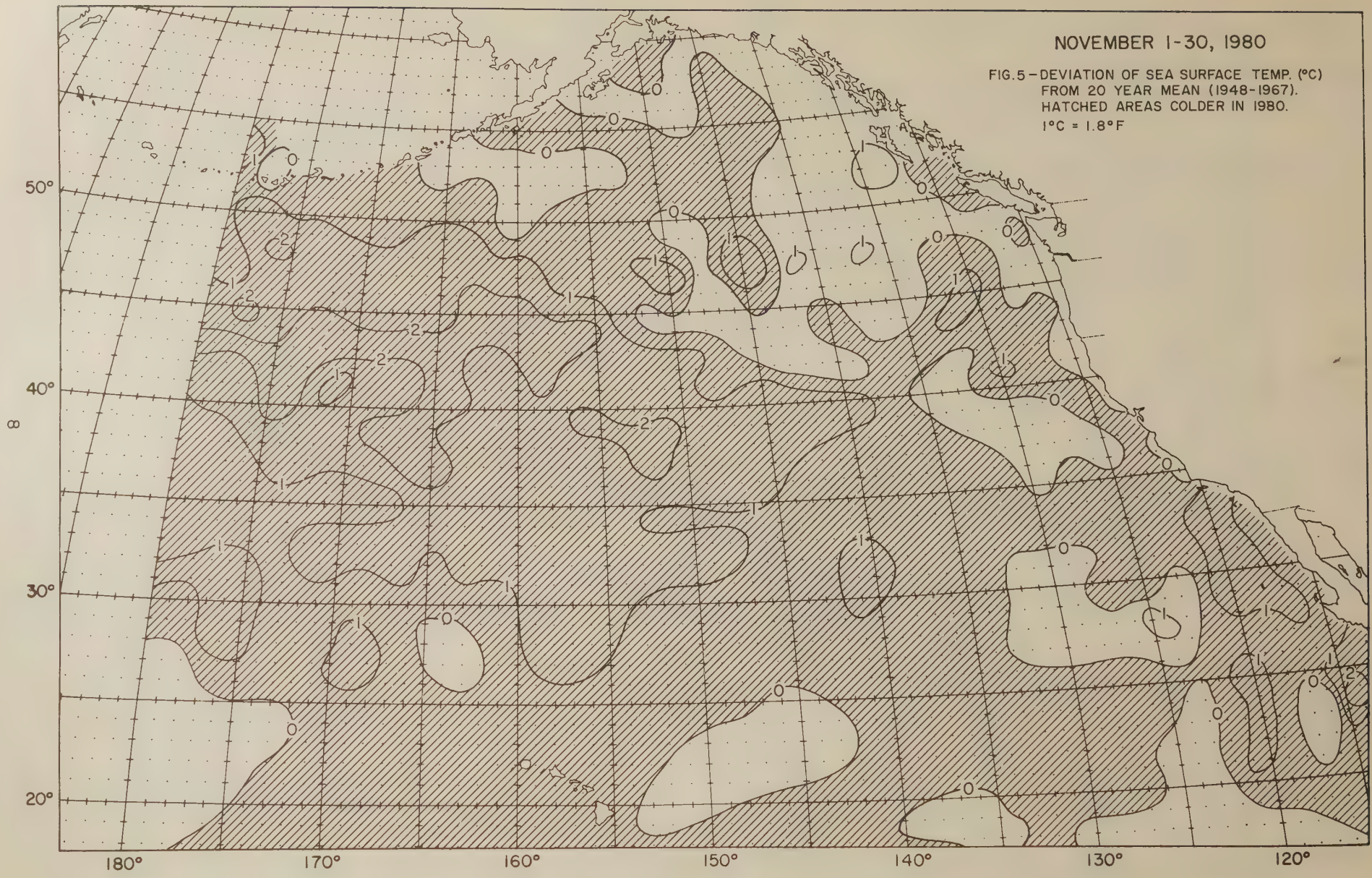

NOVEMBER 1980
FIG. 2 —OBSERVED VALUES
—0000—BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.)
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.
996
1000
1004
1008
1012
1016
1020
1024
1016

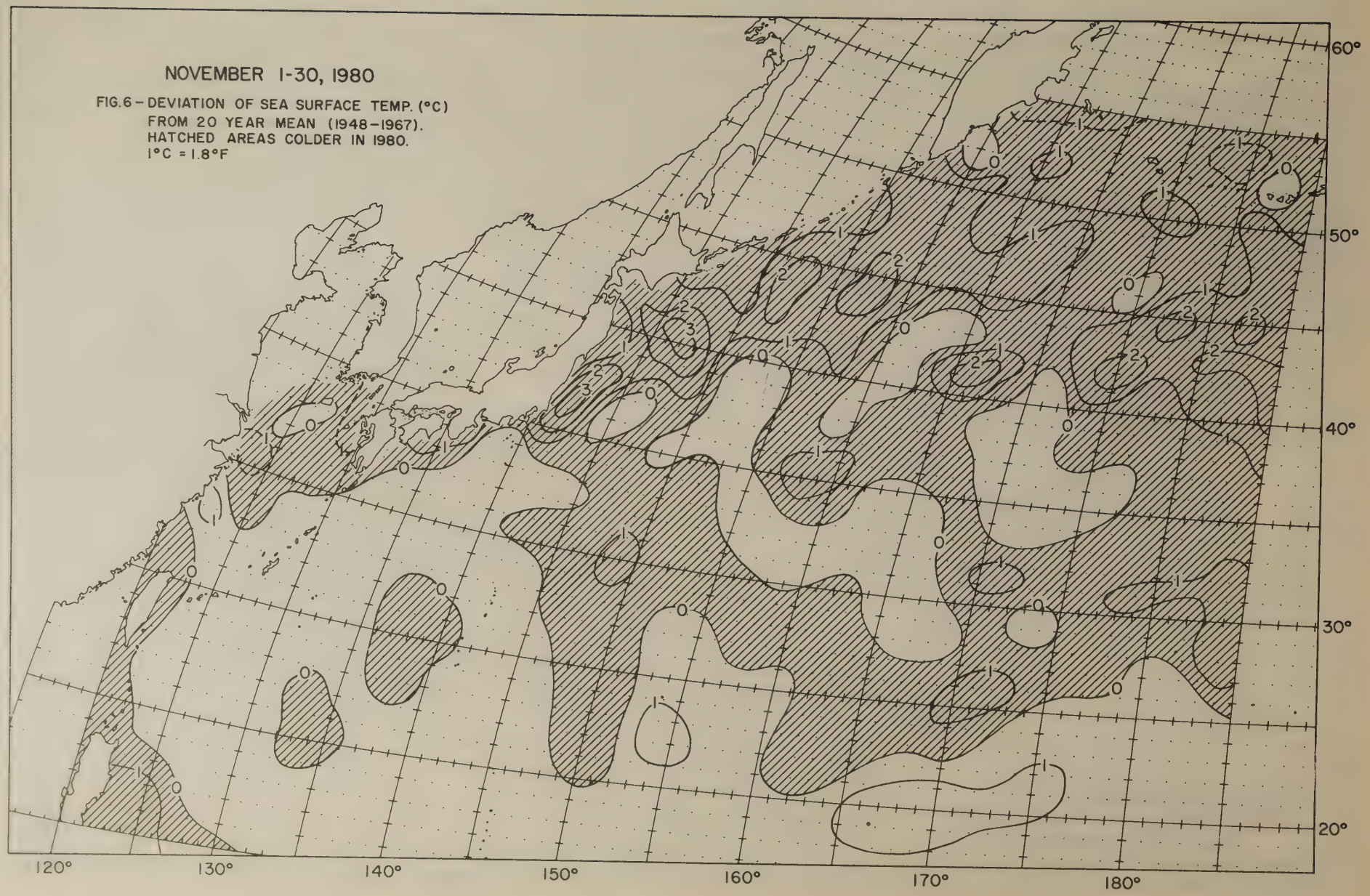

NOVEMBER 1-31, 1980
FIG.3-MEAN SEA SURFACE TEMPERATURE (°C)
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°

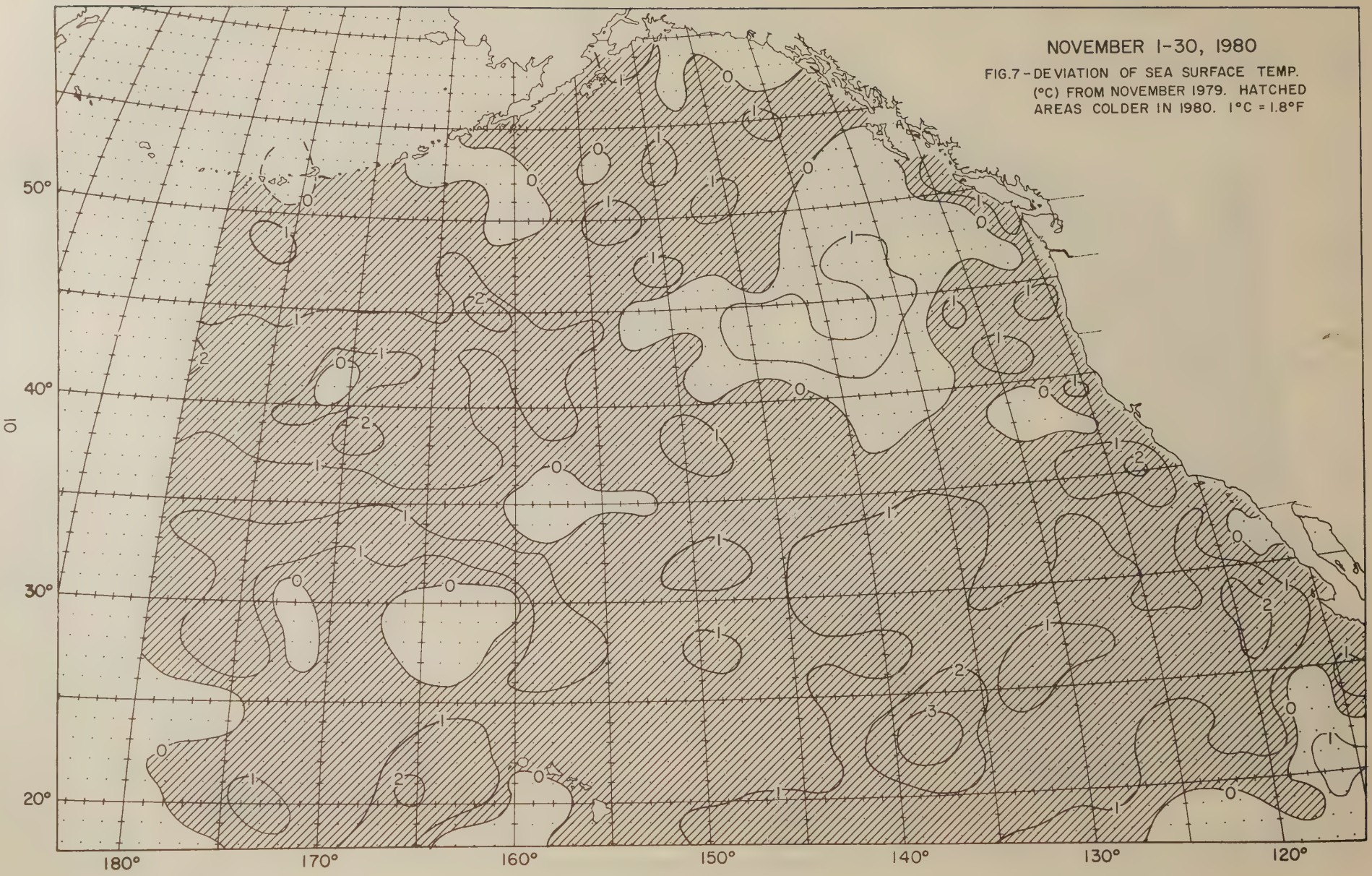
NOVEMBER 1-31, 1980

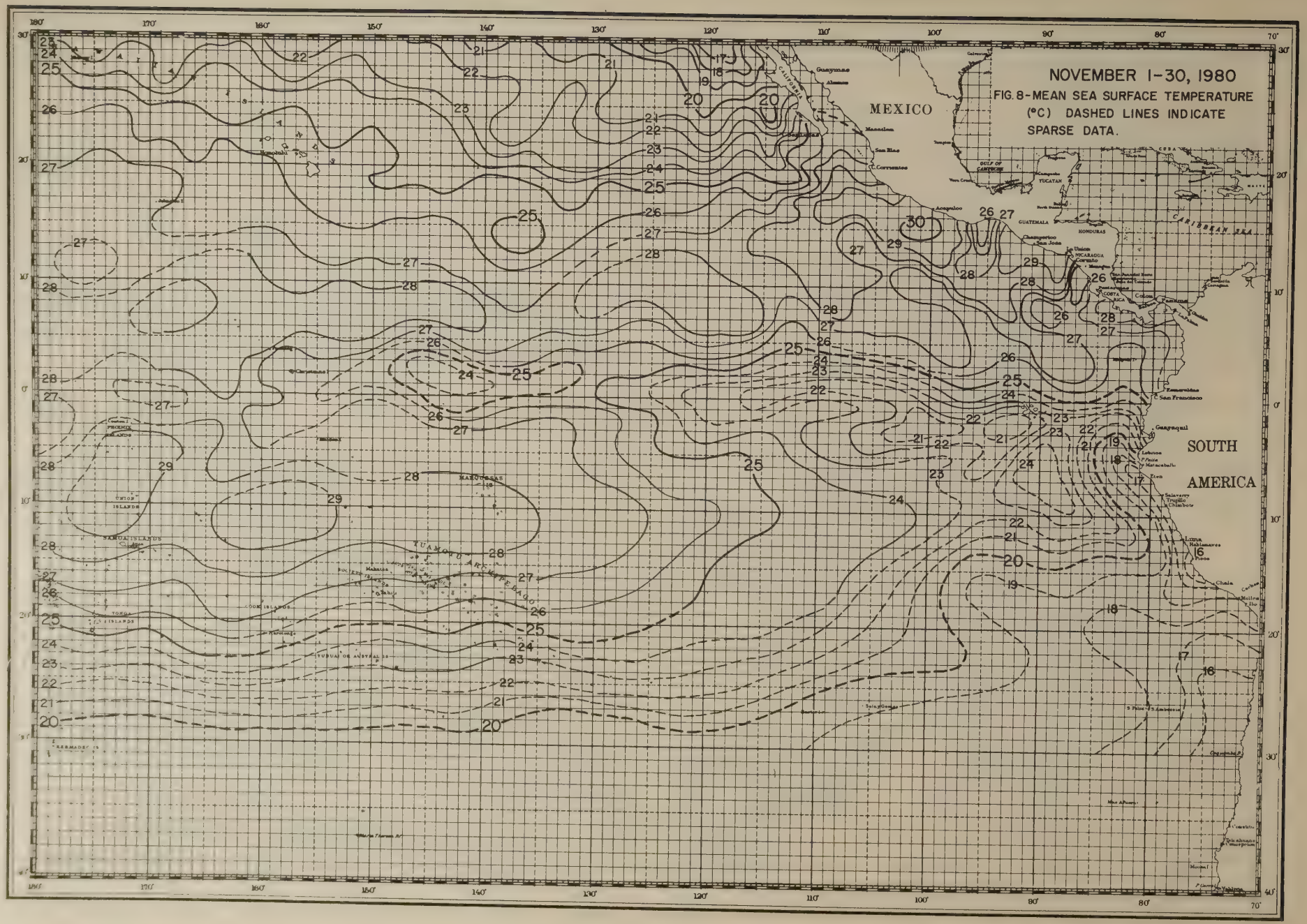
FIG.4—MEAN SEA SURFACE TEMPERATURE (°C)

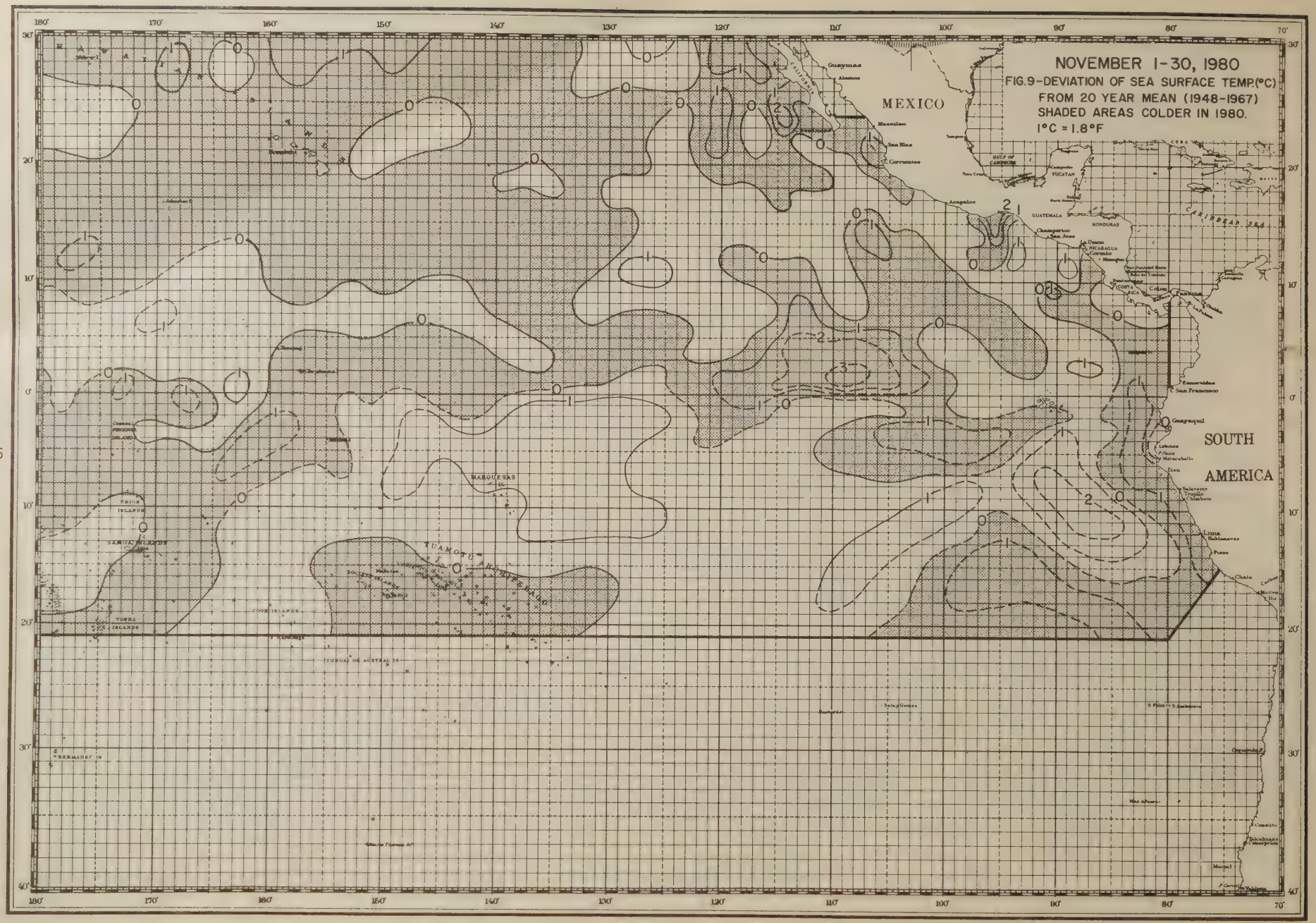


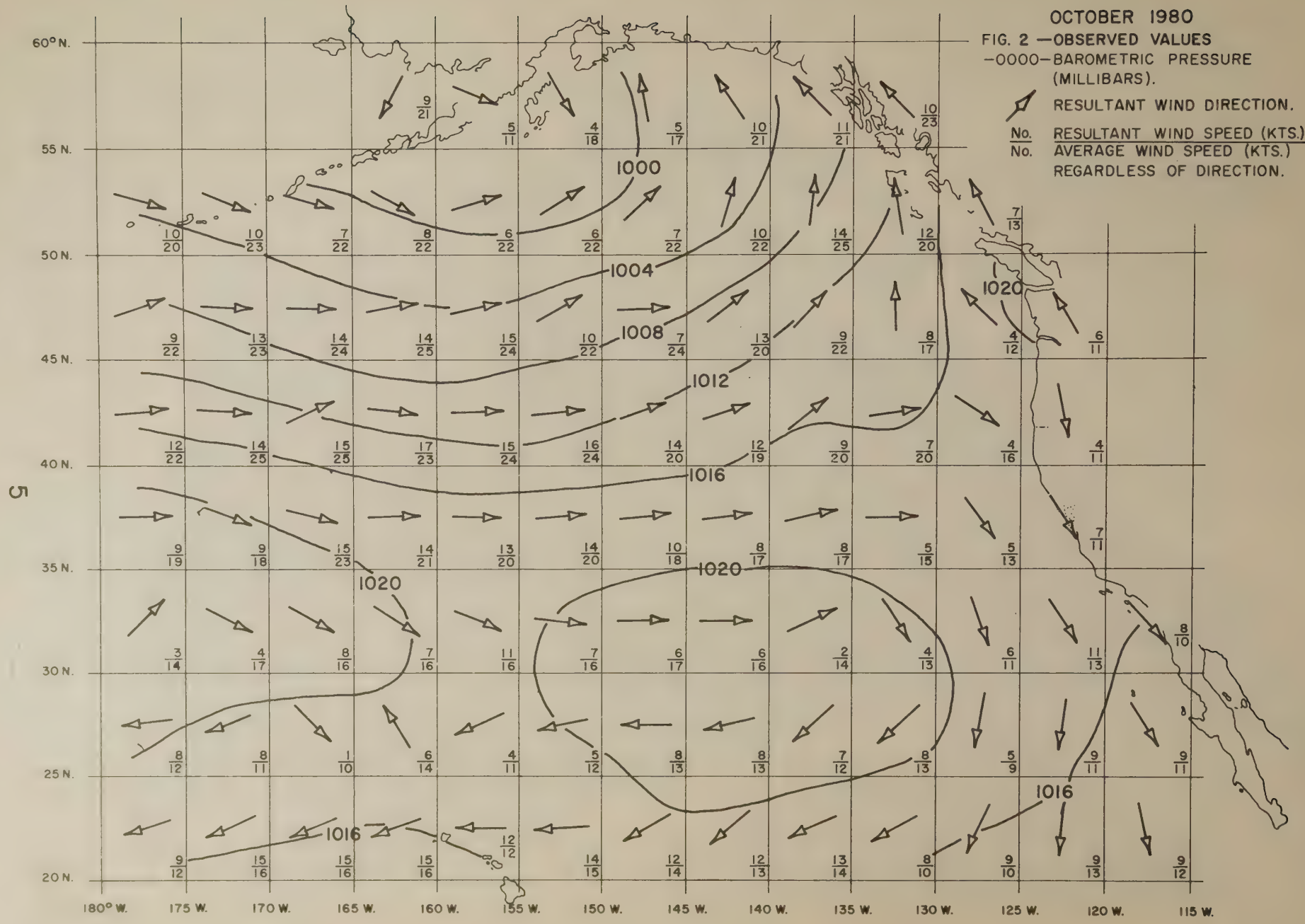

NOVEMBER 1-30, 1980
FIG.5 – DEVIATION OF SEA SURFACE TEMP. (°C) FROM 20 YEAR MEAN (1948-1967). HATCHED AREAS COLDER IN 1980.
1°C = 1.8°F
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°

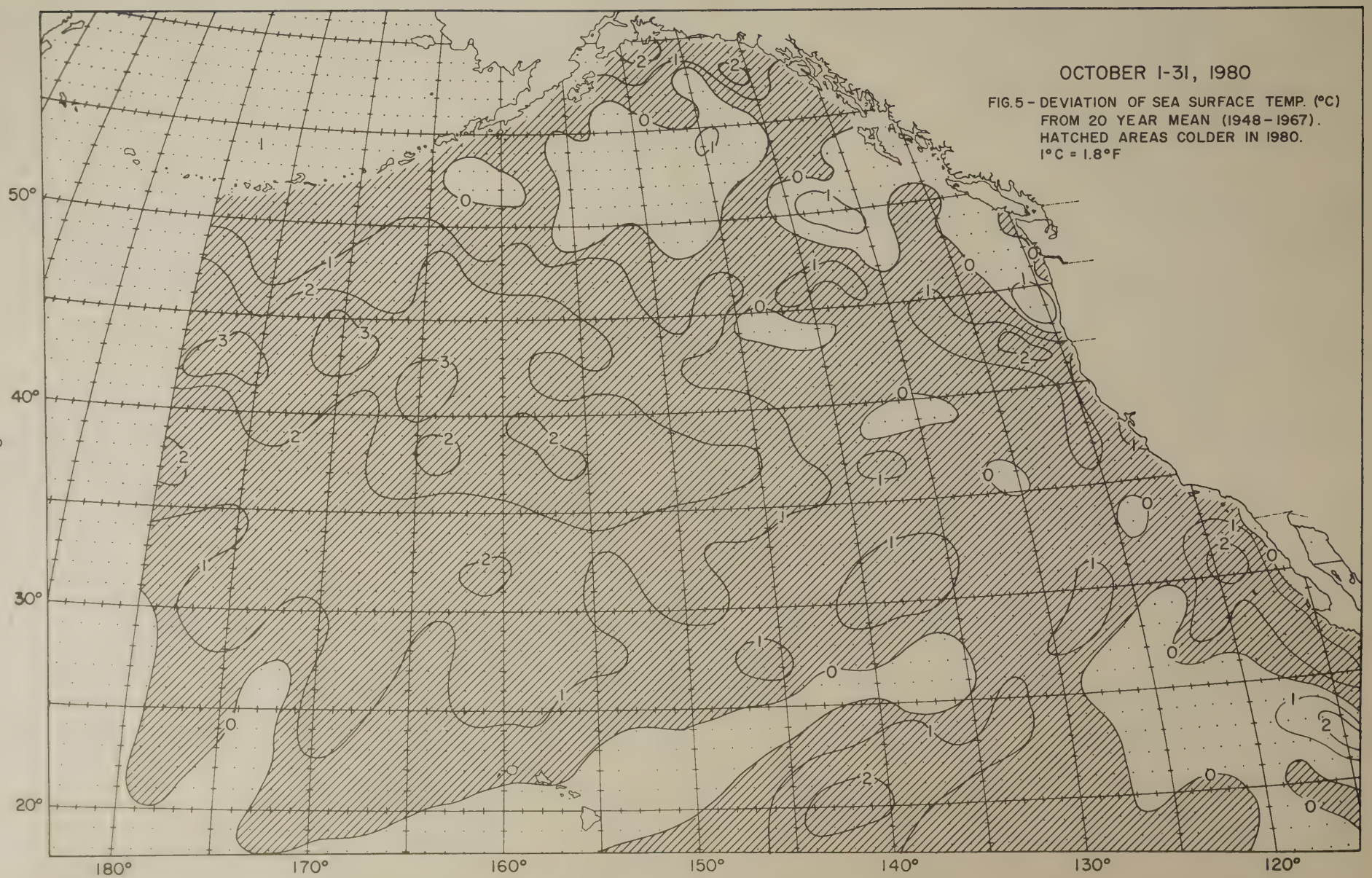

NOVEMBER 1-30, 1980
FIG.6 – DEVIATION OF SEA SURFACE TEMP. (°C)
FROM 20 YEAR MEAN (1948–1967).
HATCHED AREAS COLDER IN 1980.
1°C = 1.8°F
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°


NOVEMBER 1-30, 1980
FIG.7 - DEVIATION OF SEA SURFACE TEMP. (°C) FROM NOVEMBER 1979. HATCHED AREAS COLDER IN 1980. 1°C = 1.8°F
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°

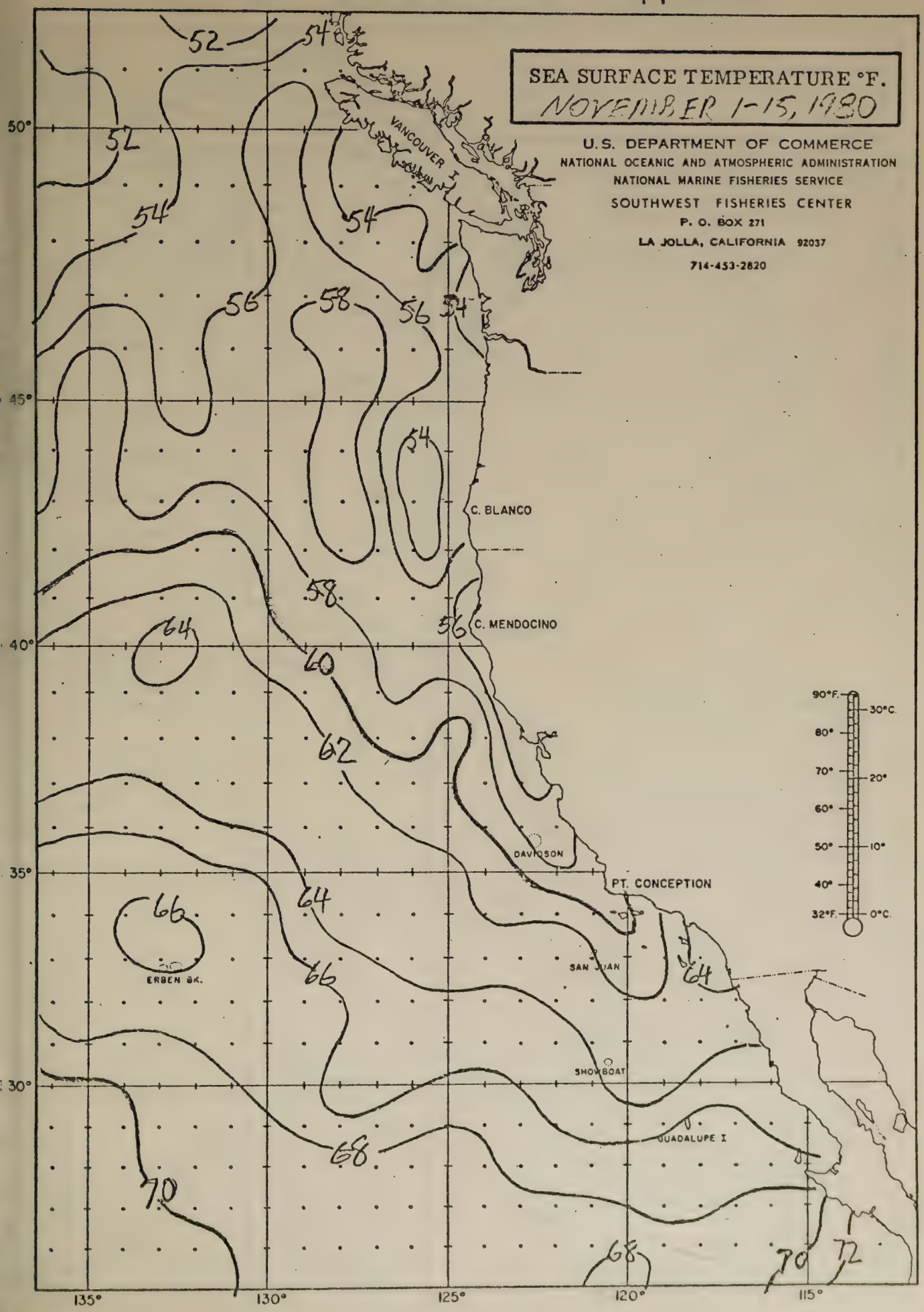

NOVEMBER 1-30, 1980
FIG. 8-MEAN SEA SURFACE TEMPERATURE (°C) DASHED LINES INDICATE SPARSE DATA.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
CUBA
YUCATAN
GULF OF CALIFORNIA
Guaymas
Mazatlan
San Blas
C. Corrientes
Acapulco
Champerico
San Jose
Corinto
Cocos
Panama
C. San Francisco
Guayaquil
Salaverry
Trujillo
Chimbote
Lima
Callao
Pisco
Chala
Mollendo
Arica
Iquique
Mejillones
Antofagasta
Coquimbo
Valparaiso
Juan Fernandez Is.
Galapagos Is.
Marquesas Is.
Tuamotu Archipelago
Society Is.
Tahiti
Samoa Islands
Cook Islands
Tonga Islands
Tubuai or Austral Is.
Easter Island
Pitcairn Is.
Henderson Is.
Ducie Is.
Oeno Is.
Clipperton Is.
Revillagigedo Is.
Socorro Is.
Cocos Is.
Malpelo Is.
Gorgona Is.
Gorgonilla Is.
Mona Island
Desventurada Is.
Juan Fernandez Is.
Sala y Gomez
Easter Island
Pitcairn Is.
Henderson Is.
Ducie Is.
Oeno Is.
Clipperton Is.
Revillagigedo Is.
Socorro Is.
Cocos Is.
Malpelo Is.
Gorgona Is.
Gorgonilla Is.
Mona Island
Desventurada Is.
Juan Fernandez Is.
Sala y Gomez


NOVEMBER 1-30, 1980
FIG.9-DEVIATION OF SEA SURFACE TEMP.(°C)
FROM 20 YEAR MEAN (1948-1967)
SHADED AREAS COLDER IN 1980.
1°C = 1.8°F
MEXICO
SOUTH
AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
GUAYAQUIL
LIMA
CHILE
MARQUESAS
TUAMOTU ARCHIPELAGO
COOK ISLANDS
TONGA ISLANDS
SAMOA ISLANDS
180°
170°
160°
150°
140°
130°
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°
40°

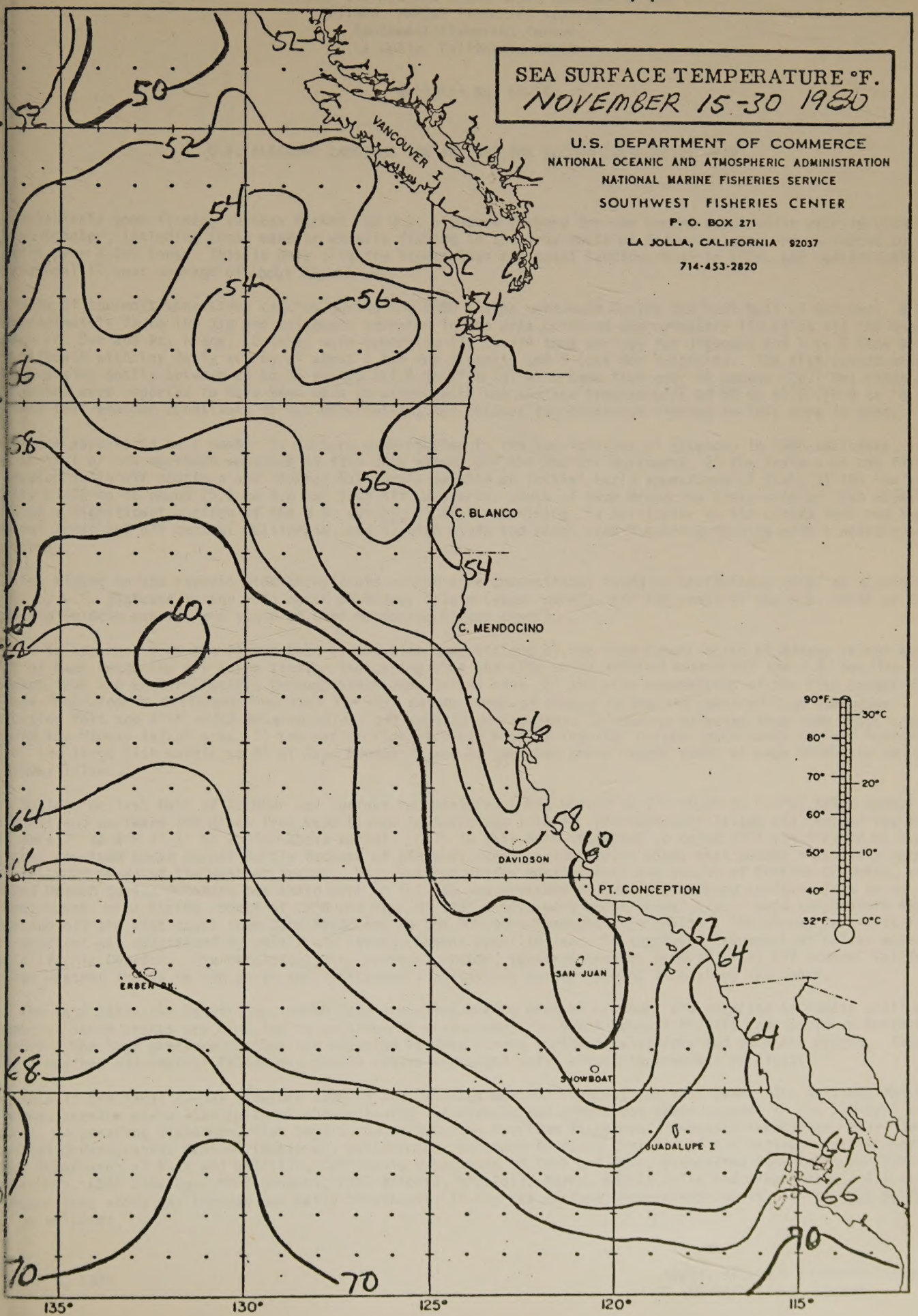

OCTOBER 1980
FIG. 2 —OBSERVED VALUES
—0000— BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.)
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.
1000
1004
1008
1012
1016
1020
1020
1016
1016


OCTOBER 1-31, 1980
FIG. 5 - DEVIATION OF SEA SURFACE TEMP. (°C) FROM 20 YEAR MEAN (1948-1967). HATCHED AREAS COLDER IN 1980. 1°C = 1.8°F
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°

FISHING INFORMATION - supplement



FISHING INFORMATION – supplement



NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
La Jolla, California 92038

Bulletin No. 80-10

U.S. ALBACORE LANDINGS LOW IN 1980 FOR SECOND CONSECUTIVE YEAR

Relatively poor fishing success marked the U.S. albacore fishery for the second consecutive year in 1980. Landings rough October, including those made by vessels fishing in the area north of Midway Island, are estimated to total ittle over 8,000 tons. This is only slightly higher than the total landings made in 1979, and considerably below e seasonal 10 year average of about 23,000 tons.

Some of the most consistent catches during the 1980 season were made during the last half of October. A fleet approximately 75 to 100 jig and baitboats operated in the area centered approximately 140 miles off the coast ween Pt. Sur and Pt. Arena. Catches were generally 1/2 to 3/4 tons per day for jigboats and 1 to 5 tons per day r baitboats with top daily scores of about 1 ton for jigboats and 9 tons for baitboats. The fish caught were rge, ranging mostly between 25 to 35 pounds (11.4 to 15.9 kg) with some fish over 50 pounds (22.7 kg) being landed. e catches were reported to have been made in waters with sea surface temperatures of 60 to 61°F (15.6 to 16.1°C). vided that weather conditions do not deteriorate, the outlook for continued fishing in this area is good.

There appears to be a number of factors contributing to the low landings of albacore in 1980 including: 1) the te arrival of the northern substock of fish into waters off the Pacific Northwest, 2) the failure of the fishery develop fully off southern and central California despite an initial early appearance of fish, 3) the low availility of 12 to 15 pound (5.5 to 6.8 kg) fish off California south of Cape Mendocino (this size of fish normally kes up a significant portion of the U.S. catch), 4) fish not biting, in particular in the Cortes Bank and San Juan amount areas and off central California, and 5) high winds and rough seas hampering fishing effort notably off lifornia.

The figure on the reverse side shows plots of the size composition, based on preliminary data, of albacore ught by U.S. jigboats in the area north of Midway Island (upper panel), off the coast of the U.S. north of Cape ndocino (middle panel), and south of Cape Mendocino (lower panel).

It is apparent from the Figure that 1) the size compositions of the fish caught north of Midway Island and rth of Cape Mendocino are quite similar indicating that the fish which entered waters off the U.S. Pacific Northwest grated from the western Pacific through the Midway Island area, 2) the size composition of the fish caught south Cape Mendocino is different from that for fish caught north of Midway Island and north of Cape Mendocino dicating that the fish which entered waters off central and southern California migrated from some place other than rough the Midway Island area, 3) the medium size fish are missing from the catches made south of Cape Mendocino, d 4) the large fish caught south of Cape Mendocino are larger than those caught north of Cape Mendocino and north Midway Island.

During the last half of October sea surface temperatures (SST) were 1° to 2°F (0.6° to 1.1°C) below normal along e coast and westward 100 miles from Cape Blanco to Guadalupe Island. Off Vancouver Island and west of Washington Ts were 2° to 4°F (1.1° to 2.2°C) above normal. SSTs in this area decreased to below 58°F (14.4°C) on an average, t they remained above normal partly because of the persistent southwesterly winds that pushed relatively warm water rtheastward ahead of the weather fronts. Many weather fronts moved across the coasts of British Columbia, Washing-n and Oregon during October, but there were no intense low pressure systems with strong surface winds to cool SST deep ocean, wind mixing. South of 33°N and west of 123° W SSTs were above normal also. Good temperature edges rsisted off the west coast from Cape Mendocino to the Davidson Seamount (see chart). The strong east-west tempera-re gradient was maintained by relatively strong coastal upwelling and the southward transport of colder water in e California Current. The persistent high pressure system, centered several hundred miles off central California, ocked weather fronts to the north and maintained a persistent northerly wind flow along the coast.

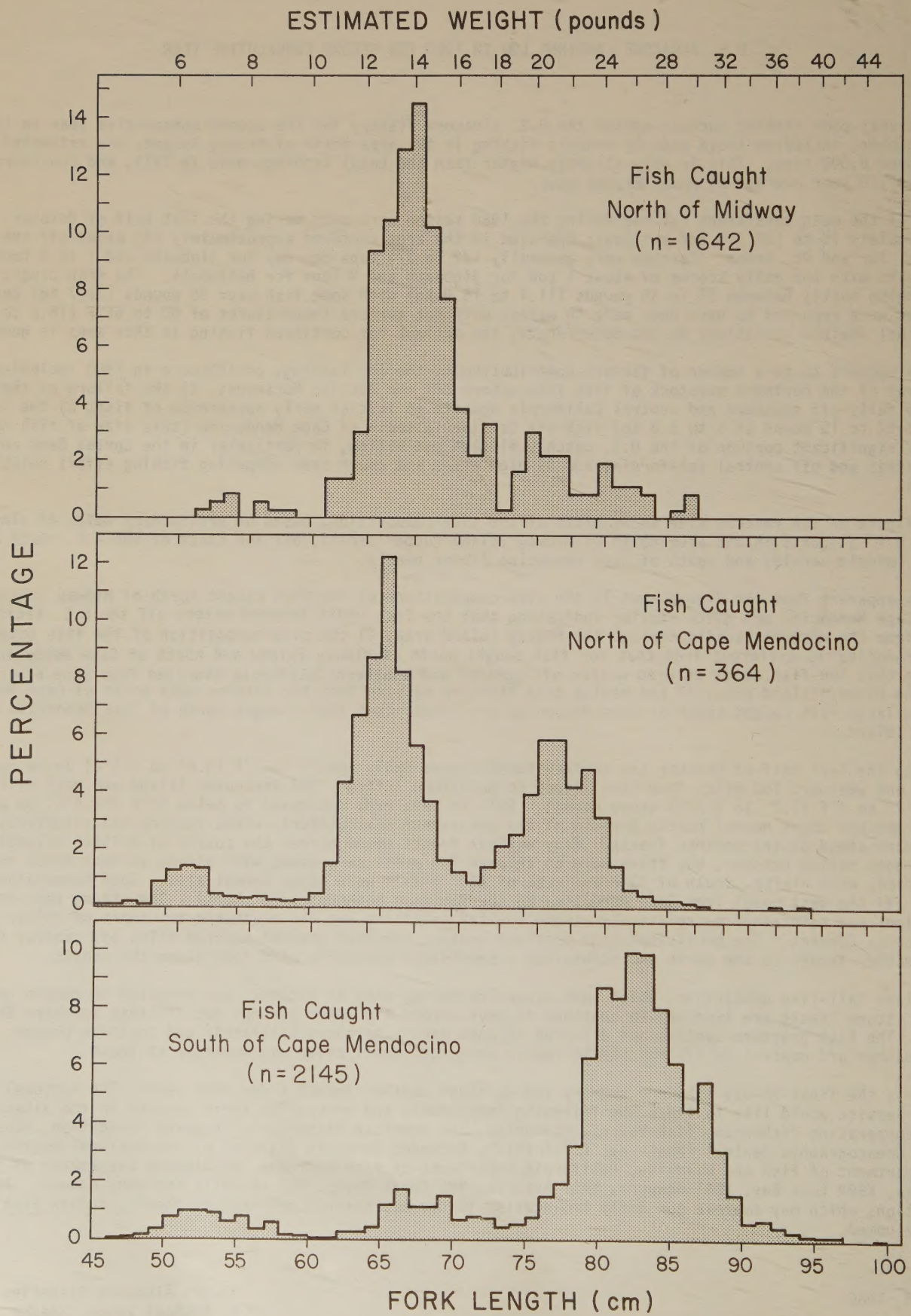
The late Fall-like conditions, which have prevailed during most of October, are expected to remain until mid-vember. Storm tracks are expected to continue to move across the north central Pacific into southern British lumbia. The high pressure systems are expected to move across northern California and southern Oregon. Thus, shing weather off central California should remain unchanged until after mid-November at least.

This is the final 15-day albacore summary and extended weather forecast for this year. The National Marine sheries Service would like to thank the following individuals and groups for their support in the albacore advisory ogram: cooperating fishermen, fish buyers, canneries, the American Fishermen's Research Foundation, Navy Fleet merical Oceanographic Central (Monterey, California), Extended Forecast Division of the National Weather Service, egon Department of Fish and Wildlife, California Department of Fish and Game, Washington Department of Fisheries, ED Eureka, KBBR Coos Bay, KNPT Newport, KAST Astoria, NMC Point Reyes, WWD La Jolla and many others. Any comments suggestions which may improve our daily broadcasts, 15-day sea surface temperature charts, and/or Fish Bulletins ll be welcomed.

vember 5, 1980

Staff, Albacore Fisheries Program
R. Michael Laurs, Leader

SIZE COMPOSITION OF ALBACORE CAUGHT BY U.S. JIGBOATS
DURING 1980 SEASON (Preliminary)


ESTIMATED WEIGHT (pounds)
6 8 10 12 14 16 18 20 24 28 32 36 40 44
Fish Caught
North of Midway
(n = 1642)
Fish Caught
North of Cape Mendocino
(n = 364)
Fish Caught
South of Cape Mendocino
(n = 2145)
PERCENTAGE
FORK LENGTH (cm)
45 50 55 60 65 70 75 80 85 90 95 100